

05/21/2009

Appl. No. 10/568,812
Amdt. dated May 13, 2009
Reply to FINAL Office action of Feb. 19, 2009

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-9. (Canceled)

10. **(Currently amended)** In a fluid pump for use in a fuel injection apparatus of an internal combustion engine and having a housing that contains a pump chamber in which at least one rotary driven delivery element is contained, which delivery element delivers fluid to a delivery chamber from an intake chamber connected to a reservoir, and having a pressure limiting valve for limiting the pressure prevailing in the pressure chamber, which valve has a valve piston inside the housing, the valve piston being acted on in the closing direction by a prestressed closing spring and being acted on in the opening direction by the pressure prevailing in the pressure chamber and, when a predetermined pressure in the delivery chamber is exceeded, opens a connecting conduit from the delivery chamber to the intake chamber, and a filter preceding the fluid pump and/or a filter, following the fuel pump, the improvement wherein the fluid pump comprises a pressure chamber having a connection to a region downstream of the preceding filter or a connection to a region downstream of the following filter, and wherein the pressure prevailing in the pressure chamber influences the force on the valve piston in the closing direction in such a way that as the pressure in the

pressure chamber decreases, the force on the valve piston in the closing direction increases,
and wherein the valve piston is offset from a symmetrical center of the pump chamber.

11. (Previously presented) The fluid pump according to claim 10, wherein the pressure chamber is delimited by a moving wall, one side of which is acted on by the pressure prevailing in the pressure chamber and the other side of which is acted on by a prestressed spring that pushes the wall toward the valve piston in its closing direction.

12. (Previously presented) The fluid pump according to claim 11, wherein the moving wall is supported against the valve piston by means of a rod.

13. (Previously presented) The fluid pump according to claim 11, wherein the moving wall is embodied in the form of a diaphragm.

14. (Previously presented) The fluid pump according to claim 12, wherein the moving wall is embodied in the form of a diaphragm.

15. (Previously presented) The fluid pump according to claim 10, wherein the valve piston at least partially delimits the pump chamber in the direction of the rotation axis of the at least one delivery element, wherein the closing spring presses the valve piston against the end surface of the at least one delivery element oriented toward it, which end surface functions as

a valve seat, and wherein the pressure prevailing in the pressure chamber acts on at least part of the end surface of the valve piston oriented toward the at least one delivery element.

16. (Previously presented) The fluid pump according to claim 11, wherein the valve piston at least partially delimits the pump chamber in the direction of the rotation axis of the at least one delivery element, wherein the closing spring presses the valve piston against the end surface of the at least one delivery element oriented toward it, which end surface functions as a valve seat, and wherein the pressure prevailing in the pressure chamber acts on at least part of the end surface of the valve piston oriented toward the at least one delivery element.

17. (Previously presented) The fluid pump according to claim 12, wherein the valve piston at least partially delimits the pump chamber in the direction of the rotation axis of the at least one delivery element, wherein the closing spring presses the valve piston against the end surface of the at least one delivery element oriented toward it, which end surface functions as a valve seat, and wherein the pressure prevailing in the pressure chamber acts on at least part of the end surface of the valve piston oriented toward the at least one delivery element.

18. (Previously presented) The fluid pump according to claim 13, wherein the valve piston at least partially delimits the pump chamber in the direction of the rotation axis of the at least one delivery element, wherein the closing spring presses the valve piston against the end surface of the at least one delivery element oriented toward it, which end surface functions as

a valve seat, and wherein the pressure prevailing in the pressure chamber acts on at least part of the end surface of the valve piston oriented toward the at least one delivery element.

19. **(Previously presented)** The fluid pump according to claim 10, wherein the connecting conduit between the delivery chamber and the intake chamber is embodied in the form of a groove let into a housing part facing the end surface of the at least one delivery element and the valve piston controls the passage through this groove.

20. **(Previously presented)** The fluid pump according to claim 11, wherein the connecting conduit between the delivery chamber and the intake chamber is embodied in the form of a groove let into a housing part facing the end surface of the at least one delivery element and the valve piston controls the passage through this groove.

21. **(Previously presented)** The fluid pump according to claim 15, wherein the connecting conduit between the delivery chamber and the intake chamber is embodied in the form of a groove let into a housing part facing the end surface of the at least one delivery element and the valve piston controls the passage through this groove.

22. **(Previously presented)** The fluid pump according to claim 15, wherein, as the pressure in the delivery chamber increases, the valve piston opens an ever greater through flow cross section in the connecting conduit.

23. (Previously presented) The fluid pump according to claim 15, wherein the diameter of the valve piston is greater than the width (b) of the connecting conduit.

24. (Previously presented) The fluid pump according to claim 22, wherein the diameter of the valve piston is greater than the width (b) of the connecting conduit.

25. (Previously presented) The fluid pump according to claim 10, wherein the valve piston is guided so that it is able to move in a bore of a housing part, and wherein the intake chamber is connected to a chamber that is delimited in the bore by the rear surface of the valve piston oriented away from the end surface of the at least one delivery element.

26. (Previously presented) The fluid pump according to claim 11, wherein the valve piston is guided so that it is able to move in a bore of a housing part, and wherein the intake chamber is connected to a chamber that is delimited in the bore by the rear surface of the valve piston oriented away from the end surface of the at least one delivery element.

27. (Previously presented) The fluid pump according to claim 15, wherein the valve piston is guided so that it is able to move in a bore of a housing part, and wherein the intake chamber is connected to a chamber that is delimited in the bore by the rear surface of the valve piston oriented away from the end surface of the at least one delivery element.

28. **(Previously presented)** The fluid pump according to claim 19, wherein the valve piston is guided so that it is able to move in a bore of a housing part, and wherein the intake chamber is connected to a chamber that is delimited in the bore by the rear surface of the valve piston oriented away from the end surface of the at least one delivery element.

29. **(Previously presented)** The fluid pump according to claim 22, wherein the valve piston is guided so that it is able to move in a bore of a housing part, and wherein the intake chamber is connected to a chamber that is delimited in the bore by the rear surface of the valve piston oriented away from the end surface of the at least one delivery element .